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THE GENUS *ANCANA* F. MUELL. (ANNONACEAE) IN AUSTRALIA

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Summary

Two species of *Ancana* F. Muell. occur in Australia, *viz A. stenopetala* F. Muell. and *A. hirsuta* which is described as new. Possible relationships with other genera in Annonaceae are briefly discussed.

The genus *Ancana* F. Muell. was described to accommodate a single species *A. stenopetala* F. Muell. This situation remained unchanged until Fries (1953) transferred this species to *Fissistigma* Griffith. The treatment of *Ancana* as congeneric with *Fissistigma* has been maintained in later classifications of the Annonaceae (Fries 1959; Hutchinson 1964).

Early in my study of Australian Annonaceae it became apparent that because of the differences given below this generic transfer by Fries could not be upheld. This view was reinforced by the discovery of a second species in Queensland referable to *Ancana*.

Ancana species are shrubs with solitary axillary flowers and the ovaries are surmounted by a markedly differentiated globose, sessile stigma, narrowly and eccentrically attached. *Fissistigma* species are climbers with few- to several-flowered terminal or leaf-opposed inflorescences and the obloid or clavate stigma is broadly attached and not clearly differentiated from the ovary. More fundamental differences in chromosome number (2n = 18 in *Ancana*, 2n = 16 in *Fissistigma*) and pollen structure have been documented by Morawetz (1988) and Waha and Morawetz (1988).

Measurements of flowers and fruit unless otherwise noted in this account are taken from material preserved in spirit. Petal width was measured at the widest point and petal thickness was measured midway along the petal length, i.e. "midlength".

ANCANA

Ancana F. Muell., Fragm. 5: 27 (1865). **Type:** *Ancana stenopetala* F. Muell.

Evergreen understorey shrubs. Flowers hermaphrodite, solitary, axillary. Sepals 3, valvate, free or very shortly connate at the base. Outer petals 3, valvate. Inner petals 3, valvate, similar in size to outer petals, grooved on inner surface near the base. Torus hemispherical, pilose between stamens and carpels. Stamens broadly wedge-shaped, anthers nearly sessile. Top surface of connective flat, oblique, concealing the anther cells, produced adaxially and upward on the innermost stamens. Carpels several, free; stigma capitate, obliquely attached to either side of the suture. Mature monocarps subglobular to allantoid, usually umbonate at the apex, the shape and length depending on the number of seeds set. Seeds transversely ellipsoid with a circumferential groove.

Distribution: The genus is an Australian endemic consisting of two allopatric species.

Key to Species

1. Outer petals 5–5.5 mm wide and at midlength 0.5–0.7 mm thick. Inner petals 3.5–4 mm wide and at midlength 0.8–1.2 mm thick. Mature monocarps glabrous . . . . . **1. A. stenopetala**

   Outer petals 8–9 mm wide and at midlength *ca* 0.2 mm thick. Inner petals 7–9 mm wide and at midlength *ca* 0.2 mm thick. Mature monocarps hirsute . . . . . **2. A. hirsuta**

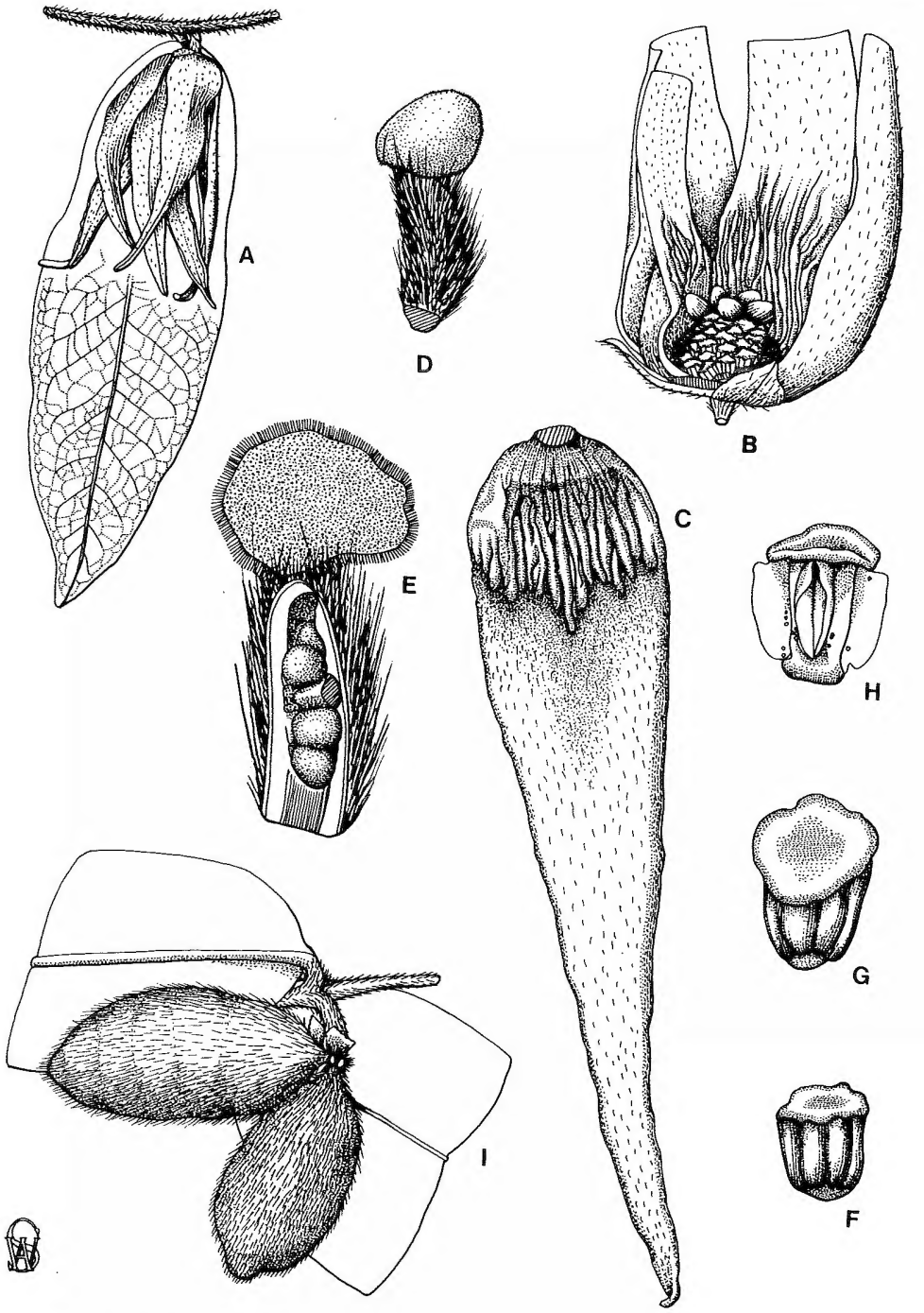

Fig. 1 *Ancana stenopetala*: A. branchlet with mature flower × 1. B. detail of flower with 1 outer and 1 inner petal removed × 3. C. inner surface of inner petal × 3. D. open flower × 1. E. mature monocarps × 1. A–C, Jessup 837; D,E, Jessup 838.

1. Ancana stenopetala F. Muell., Fragm. 5: 27 (1865); *Unona ancana* F. Muell., Fragm. 5:27 (1865), nom. inval. in synon.; *Unona ancana* F. Muell. ex Bailey, Suppl. to Syn. Queensl. fl. 3: 5 (1890), nom. illegit.; *Fissistigma stenopetala* (F. Muell.) R.E. Fries, Ark. Bot. 3(2): 36–37 (1953). **Type:** Tweed River, *C. Moore* (*n.v.*).

Shrubs to 5 m, flowering at 0.5 m. Shoots with antrorsely appressed, shining, brown, simple, thick-walled hairs, glabrescent. Twigs soon glabrous. Leaf laminae lanceolate, oblanceolate or narrowly ovate, acuminate, 5–10(–14) cm × 1.5–3(–4) cm, glabrous on adaxial surface, scattered appressed hairs on abaxial surface, glabrescent, base obtuse, rounded or broadly acute; midvein shallowly channelled above; secondary veins mostly 12–18 pairs, with some intersecondaries, raised on both surfaces; tertiary venation reticulate, raised. Petioles 2.5–3 mm long, with some persistent hairs. Pedicels 3–4 mm long with 2 or 3 ovate suprabasal bracts 1.5–2.5 mm long. Sepals broadly ovate or triangular, acuminate or acute, 4–4.5 mm × *ca* 3 mm, appressed pubescent on outside. Outer petals very narrowly ovate, convex on outside, concave on inner side, 30–45 mm × 5–5.5 mm at 4–6 mm from base, 0.5–0.7 mm thick at midlength, pubescent outside with appressed brown hairs 0.3–0.5 mm long and semi-erect pale hairs *ca* 0.1 mm long, pubescent on inner side with semi-erect pale hairs *ca* 0.1 mm long. Inner petals nearly linear, 30–48 mm × 3.5–4 mm near base tapering to 2.5 mm near apex, 0.8–1.2 mm thick at midlength; inner surface shallowly concave near base and with about 5 or 6 glabrous longitudinal grooves extending for about 1/3 the length of the petal, towards apex flat or slightly convex and covered with short tortuous hairs; outer surface pubescent with straight appressed and tortuous hairs, convex near base, flat or slightly concave towards apex. Stamens *ca* 35–45, 1.5–2 mm long, anther cells 1–1.5 mm long. Carpels usually 5, ovary *ca* 1.5 mm long with appressed hairs *ca* 0.5 mm long. Ovules 5 or 6. Ripe monocarps up to 4.5 × 2 cm, warted, glabrous, on stipes up to 5 mm long. Seeds usually 2–5. **Fig. 1.**

Specimens examined: Queensland. MORETON DISTRICT: Tambourine Mt, May 1945, *Blake* 15822 (BRI); ditto, Apr 1947, *Clemens* (BRI); Upper Coomera–Canungra road *ca* 25 km from Upper Coomera, Mar 1976, *Stanley* 80 (BRI); Burleigh Heads, Dec 1917, *White* (BRI); Currumbin, Mar 1916, *Longman* (BRI). **New South Wales.** NORTH COAST: Tweed River, *Fawcett* [AQ210452] (BRI,MEL); Mt Warning, Dec 1981, *Jessup* 457 (BRI); Terania Ck, 10 km NNE of The Shannon, Feb 1980, *Coveny* 10627 (BRI); North Ck, Ballina, Jan 1892, *Bauerlen* 737 (BRI).

Distribution and habitat: This species occurs from Tambourine Mountain, Queensland to near Coffs Harbour, New South Wales. It is often locally common in fairly restricted areas. It is found in upland, lowland and littoral types of complex notophyll vine forest on soil derived from or enriched with basalt.

2. Ancana hirsuta Jessup **species nova**

Frutex usque 2.5 m altus. Innovationes pilis antrorsis adpressis nitido-cinnamomeis, simplicibus, parietibus crassis obsitae. Ramunculi hirsuti. Laminae foliorum lanceolatae, oblanceolatae vel ellipticae, plerumque acuminatae, 5–10(–14) cm longae et 1.3–3(–5) cm latae, supra praeter costam glabrae, infra pilis dispersis adpressis obsitae, basi obtusae rotundatae vel late acutae. Petioli 2–2.5 mm longi, hirsuti. Pedicelli 2–4 mm longi pubescentes, bracteis late ovatis 1.5–2.2 mm longis. Sepalae late ovatae, abrupte acuminatae, 4.5–5.5 mm longae et 4–4.8 mm latae, extus pubescentiae, intus glabrae. Petalae exteriorae anguste ovatae, attenuatae, 30–40 mm longae et 8–9 mm latae, extus adpresse pubescentes, intus breviter et molliter pubescentes. Petalae interiorae anguste ovatae, attenuatae, 30–48 mm longae et 7–9 mm latae, extus pubescentes, intus prope basin concavae, glabrae, multisulcatae, versus apice planae vel cum marginibus incurvis, pubescentae. Stamina 45–60, 1.2–2 mm longa, antherae 0.8–1.6 mm longae. Carpella 5–11(–16), ovaria 1.8–2 mm longa, pilis adpressis, 0.5 mm longis obsita. Ovula 4–6. Monocarpia matura (in siccitate) ad 2 cm longa et 1 cm lata, hirsuta, pilis *ca* 1 mm longis, cinnamomeis. Semina 1–5. **Typus:** Queensland. COOK DISTRICT: Henrietta Creek, Palmerston Highway, 17°36′S 145°46′E, November 1982, *Jessup* 512 (holo: BRI; iso: BRI,CBG,K,L,MEL,NSW,QRS,U).

Shrub to 2.5 m, flowering at less than 0.5 m. Shoots with antrorsely appressed, shiny brown, simple, thick-walled hairs. Twigs hirsute. Leaf lamina lanceolate, oblanceolate or elliptic, usually acuminate, 5–10(–14) cm × 1.3–3(–5) cm, glabrous on adaxial surface except for pilose midvein, scattered appressed hairy on abaxial surface, base obtuse, rounded or broadly acute; midvein shallowly channelled above, raised below; secondary veins mostly 13–16 pairs, with some intersecondaries, scarcely raised above, more

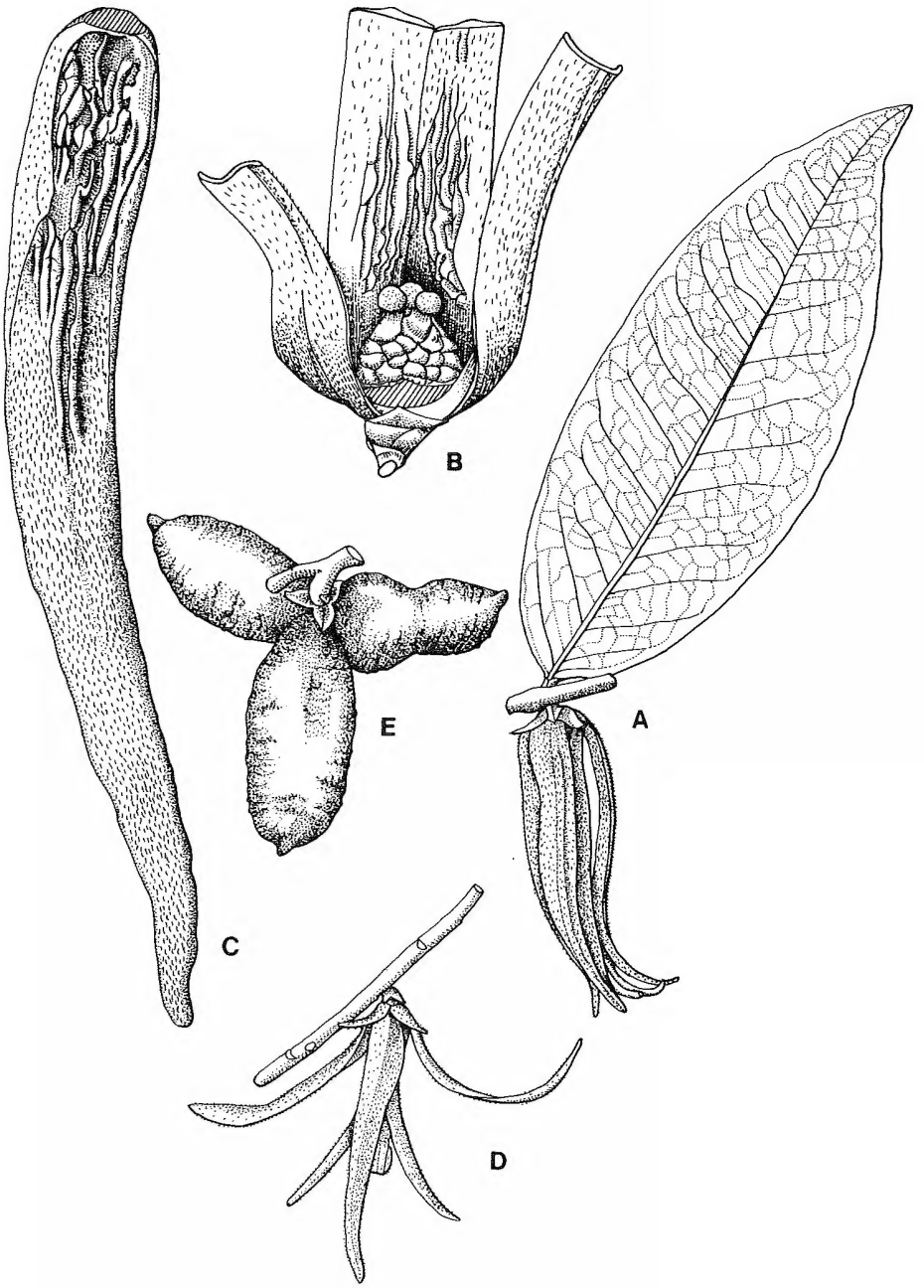

Fig. 2 *Ancana hirsuta*: A. branchlet with mature flower × 1. B. detail of flower with 1 outer and inner petal removed × 3. C. inner surface of inner petal × 3. D. carpel × 12. E. L.S. carpel × 25. F. outer stamen × 12. G. inner stamen × 12. H. stamen with dehisced anthers × 12. I. nearly mature monocarps in dry state × 2. A–C, Jessup 706; D–H, Jessup 512; I, Jessup 478.

prominently raised below; tertiary venation reticulate to percurrent. Petiole 2–2.5 mm long, hirsute. Pedicel 2–4 mm long, pubescent, with 2 or 3 broadly ovate bracts 1.5–2.2 mm long. Sepals broadly ovate, abruptly acuminate, 4.5–5.5 mm × 4–4.8 mm, pubescent on outside, glabrous on inner side. Outer petals narrowly ovate, attenuate, convex on outside, concave on inner side, 30–40 mm × 8–9 mm at 5–7 mm from base, *ca* 0.2 mm thick at midlength, appressed hairy outside, softly pubescent on inner side. Inner petals narrowly ovate, attenuate, 30–48 mm × 7–9 mm at 4–6 mm from base, *ca* 0.2 mm thick at midlength; outer surface pubescent, convex near base, elsewhere flat; inner surface concave near base, glabrous, multigrooved, the grooves becoming fewer and wider distally and extending for about 1/4–1/3 the length of the petal, towards apex flat or with incurved margins, pubescent. Stamens 45–60, 1.2–2 mm long; anther cells 0.8–1.6 mm long. Carpels 5–11(–16), ovaries 1.8–2 mm long with appressed hairs *ca* 0.5 mm long. Ovules 4–6. Ripe monocarps (when dried) up to 2 cm × 1 cm, hirsute, the hairs *ca* 1 mm long, brown. Seeds 1–5. **Fig. 2.**

Specimens examined: Queensland. COOK DISTRICT: Cedar Bay, N of Bloomfield R, Oct 1972, *Webb & Tracey* 13359 (*Dick* 8) (BRI); ditto, Jan 1973, *Webb & Tracey* 13360 (*Dick* 24) (BRI); near entrance to Mossman Gorge National Park, near Mossman R, Dec 1982, *Jessup* 544, 545 (BRI); ditto, Dec 1984, *Jessup* 706 (BRI); Crawfords Lookout to Tchupalla Falls Track, Palmerston National Park, Feb 1982, *Jessup* 478 & *Tracey* (BRI,QRS); Henrietta Ck, Palmerston Highway, Nov 1982, *Jessup* 512 (BRI,CBG,K,L,MEL,NSW,QRS,U).

Distribution and habitat: This species has been found only in three refugia in north eastern Queensland: at Cedar Bay, along the Mossman River and the North Johnstone River. It occurs on lowlands and footslopes in complex mesophyll vine forest on soil derived from basalt or a mixture of acidic and basic rock types.

Discussion

The relationships of *Ancana* with other genera are still unclear. Waha and Morawetz (1988) have shown that the genus shares a disulcate pollen character with *Fitzalania* and *Haplostichanthus* as well as the 2n = 18 chromosome number.

The genera *Meiogyne*, *Polyaulax*, *Guamia* and *Oncodostigma* all have a warted or grooved inner surface to the inner petals near the base, axillary flowers, flat, oblique connectives to the stamens and a subglobular stigma all similar to those in *Ancana*. *Ancana* differs from *Meiogyne*, *Guamia* and *Oncodostigma* in having fewer ovules per carpel. *Meiogyne* has predominantly Early Phase venation while *Guamia*, *Oncodostigma* and *Polyaulax* have predominantly Middle Phase venation (Klucking 1986). The venation of *Ancana* is also largely Middle Phase. *Polyaulax* differs from the other genera by having much shorter and thicker petals.

Acknowledgements

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